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on a web, taking into account changes in the elastic properties of the material. The system has the ability to measure the cut length, compare the average cut length to a target cut length, and to adjust web tension or feed roll speed to achieve the target cut length. Also, in a preferred embodiment of the system, the system is able to maintain the web tension at a minimum to reduce cut length variation, and adjust the feed roll speed to achieve the target cut length.

Amendment to the Drawings

The Examiner has indicated that the previously filed proposed drawing correction of Fig. 1 has been approved. Applicants are herewith submitting a revised formal drawing of Fig. 1 including the proposed drawing correction.

Claim Rejections - 35 USC §103

The rejection of Claims 1, 8, 10-16, and 23-26 under 35 USC §103(a) as being unpatentable over Shirasu (U.S. Patent No. 4,635,511) is respectfully traversed.

Shirasu discloses a cutter control apparatus for controlling the position in which a workpiece is cut by a cutter. The cutter control apparatus has a correction device for automatically correcting the cutting position to make uniform the cut dimension of a piece cut by the cutter.

Applicants' invention, as claimed in amended independent Claims 1 and 15, is directed to a process for cutting a material into pieces having a predetermined target length. The process includes the steps of measuring tension in the web, using a cut-off module to cut a piece of the material from the web, measuring an actual length of the piece of material, comparing the actual length of the piece of material to a target length, and adjusting the tension in the web and/or the speed of the feed roll in response to any difference between the actual length and the target length.

In contrast to Shirasu, the present invention does not adjust the cutting position of the cutting device but instead adjusts either the tension in the web or the speed of the feed roll. Applicants' invention is particularly useful for cutting elastic materials into pieces. Tension in elastic materials is much more variable than in non-

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elastic materials. Shirasu fails to disclose or suggest a process for cutting a material into pieces having a predetermined target length in which tension in the web and/or the speed of a feed roll is adjusted in response to a difference between an actual measured length and the target length. In addition, Shirasu fails to disclose or suggest a process for cutting an elastic material, or any other type of tension-sensitive material, and therefore fails to disclose or suggest any reason to measure or adjust tension in a web during a cutting process.

Furthermore, Shirasu does not allow for correction operations to be carried out more frequently than once per production lot. In Shirasu, a memory circuit must first store a number of data sets (e.g. 200 data sets) of actual cut lengths, and then determine a central value of the distribution of actual cut dimensions before a corrector value can be calculated. The corrector value is based on a difference between the central value and a cut dimension setting. As indicated at Column 4, line 67 - Column 5, line 2, a correction operation is not carried out for each cutting operation, but, rather, a correction operation is carried out for each production lot in which the predetermined number of cutting operations is accomplished. In the process of Shirasu, if a cycle of mistakes occurs within the lot, the correction process may not catch the mistake because only a central value of the distribution is determined rather than comparing each piece within the lot.

In contrast, the process of the present invention is a continuously-controlling process that uses a PID control system to compare the cut length of each individual piece of material to a target cut length and make adjustments in the tension or feed rate as necessary. Shirasu does not provide a way to correct the cut length of pieces of material within a lot but instead corrects subsequent lots based on length discrepancies determined by a single central value of the distribution of the preceding lot. Unlike Shirasu, the present invention measures each piece of material and can correct the cut length of subsequent pieces within the same lot.

For at least the reasons given above, Applicants respectfully submit that the teachings of Shirasu fail to disclose or suggest Applicants' claimed invention. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

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Conclusion

Applicants believe that this case is now in condition for allowance. If the Examiner feels that any issues remain, then Applicants' undersigned attorney would like to discuss the case with the Examiner. The undersigned can be reached at (847) 490-1400.

Respectfully submitted,



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